

# **A New Method for Deepening Wells That Are Going Dry**

**Authors:**

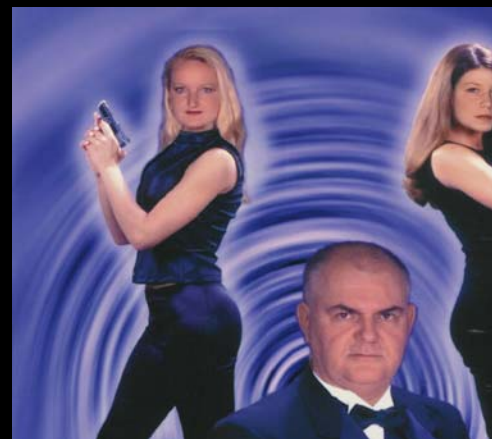
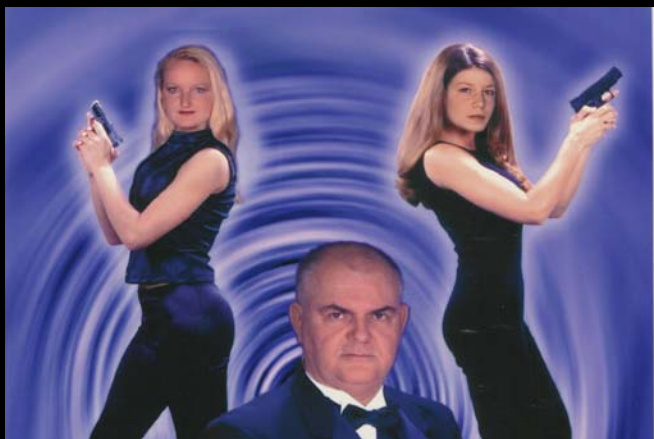
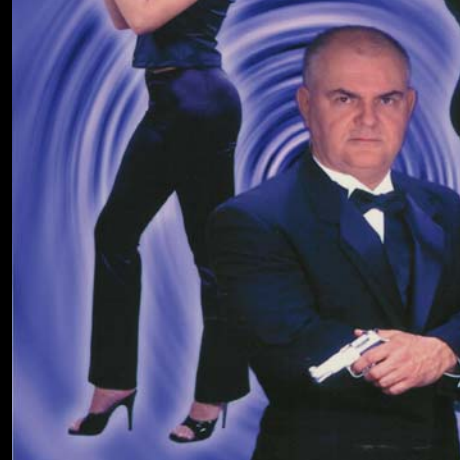
**Jonathan W. Lindberg**

**Ronald Schalla**

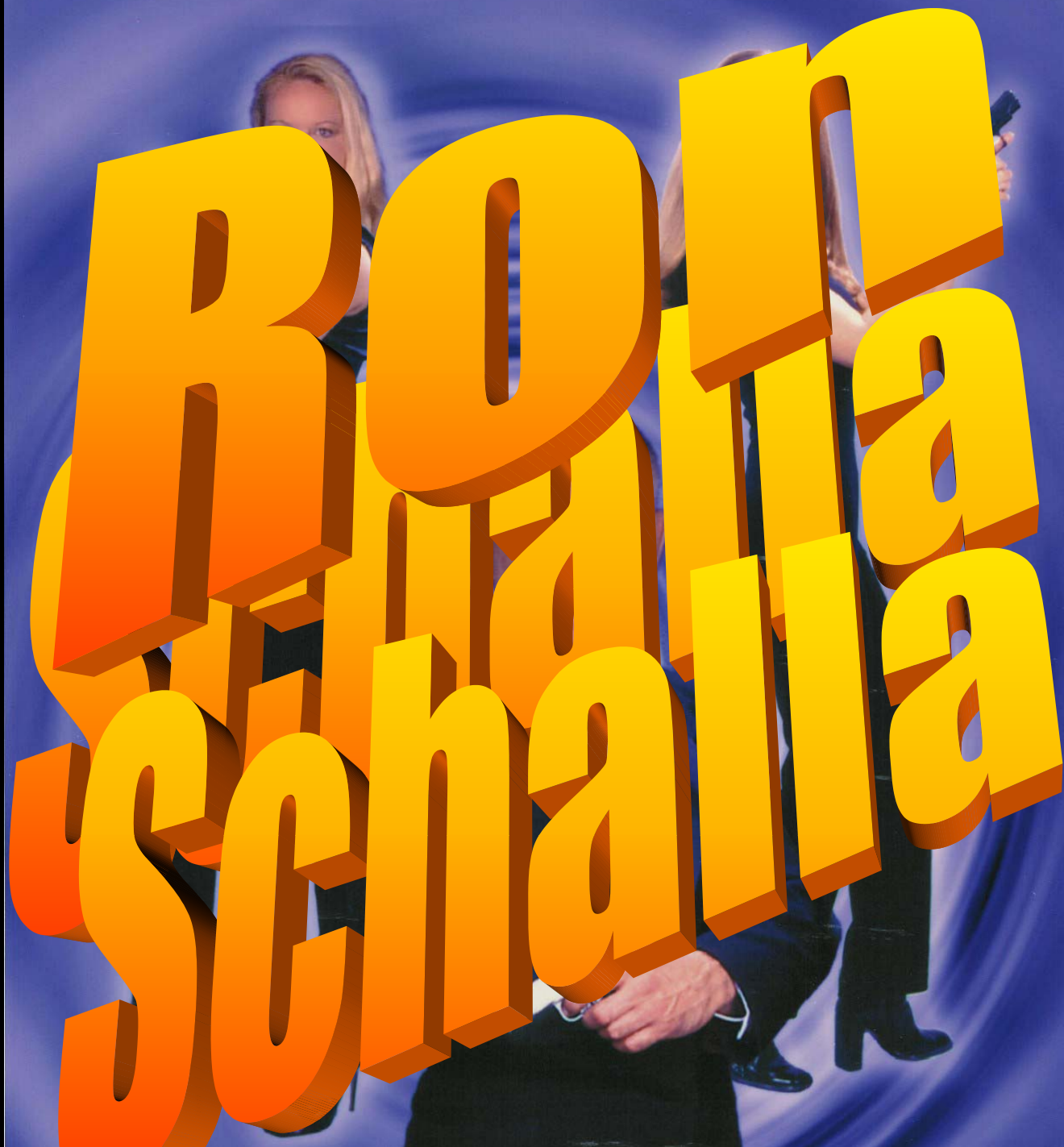
**Prepared for the U.S. Department  
of Energy under Contract DE-  
AC06-6RLO 1830**

**Pacific Northwest  
National Laboratory**

Today's Presenter?

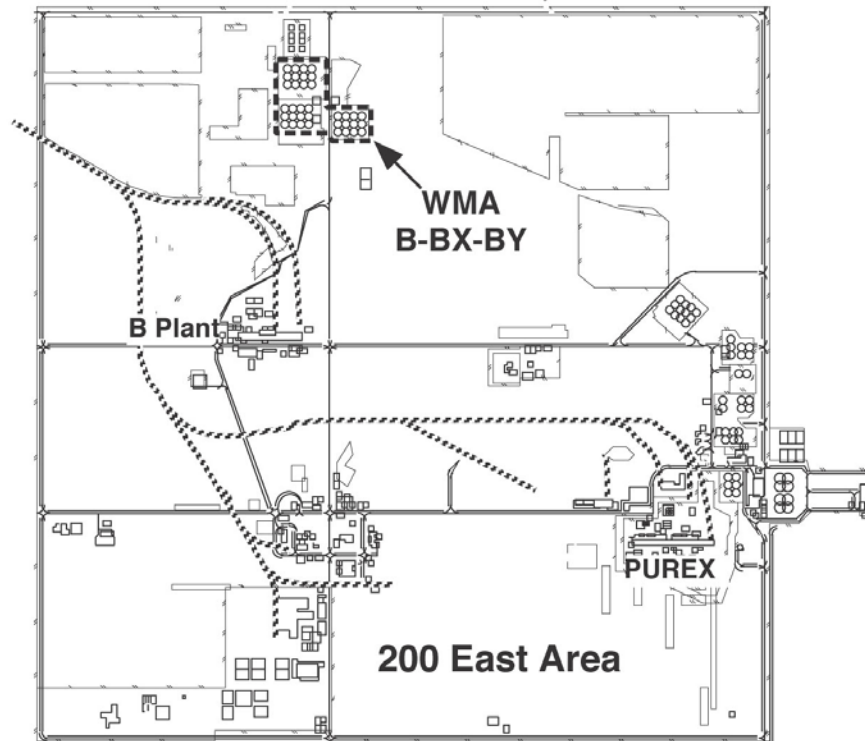
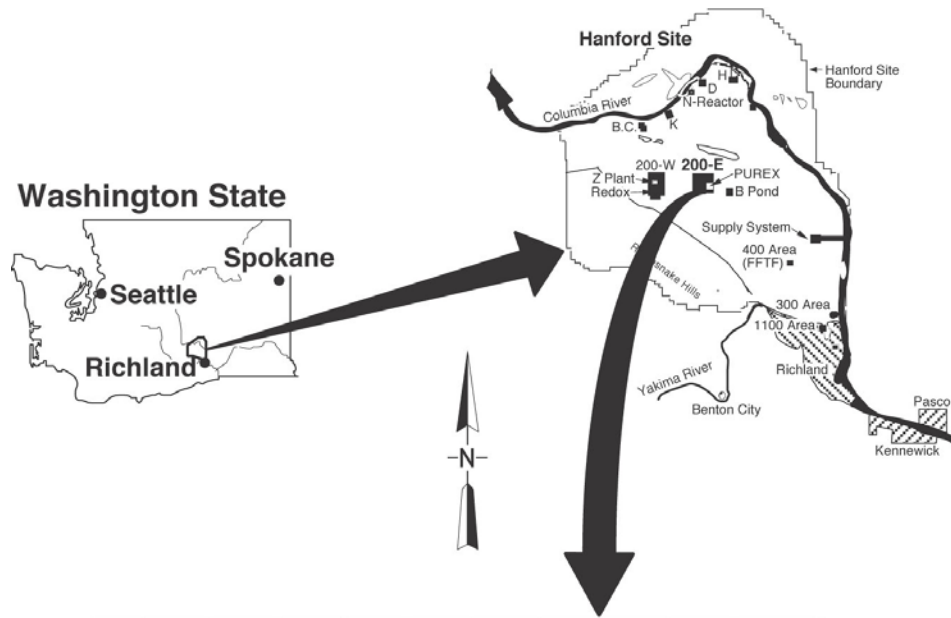


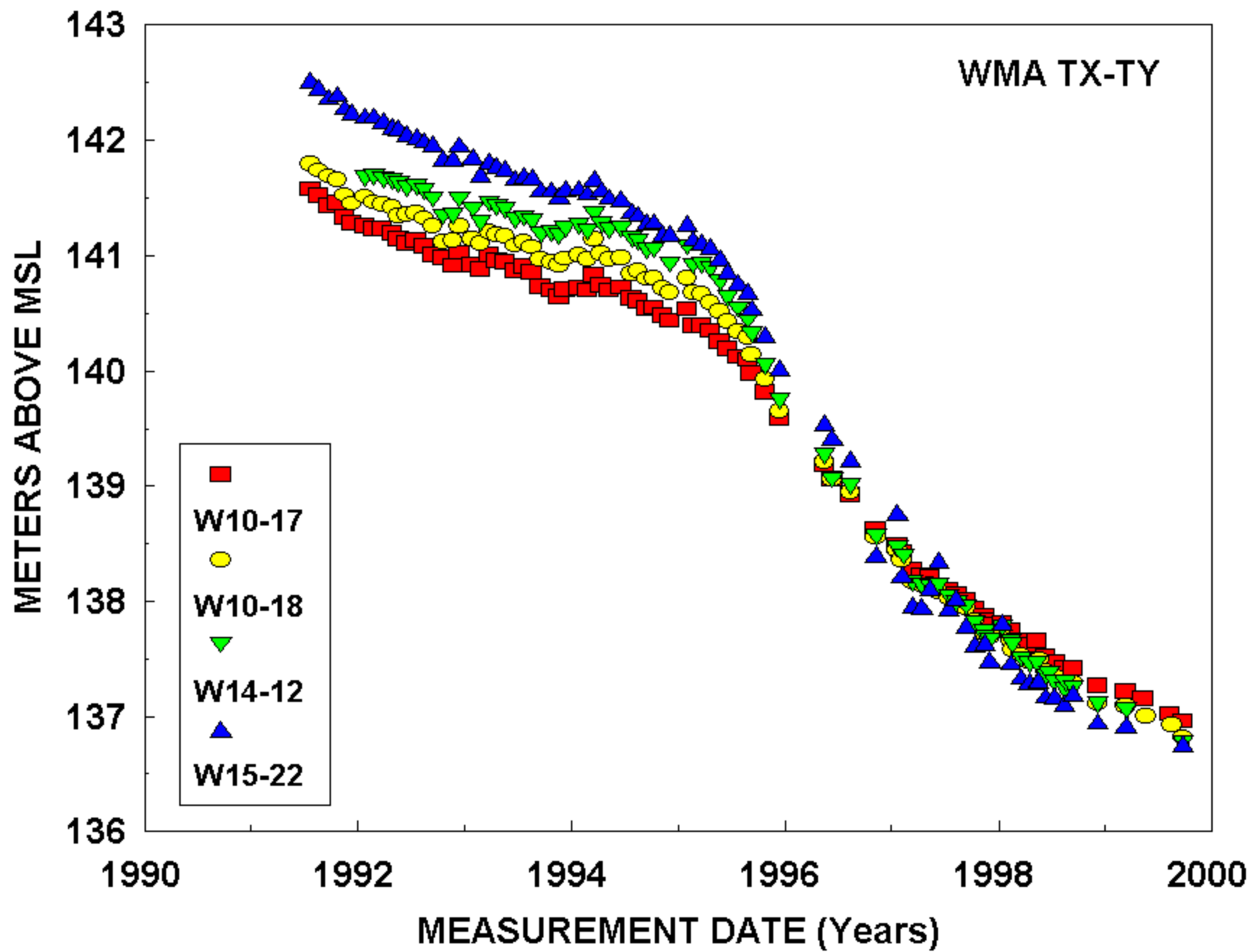
**ROMA  
Schallia**



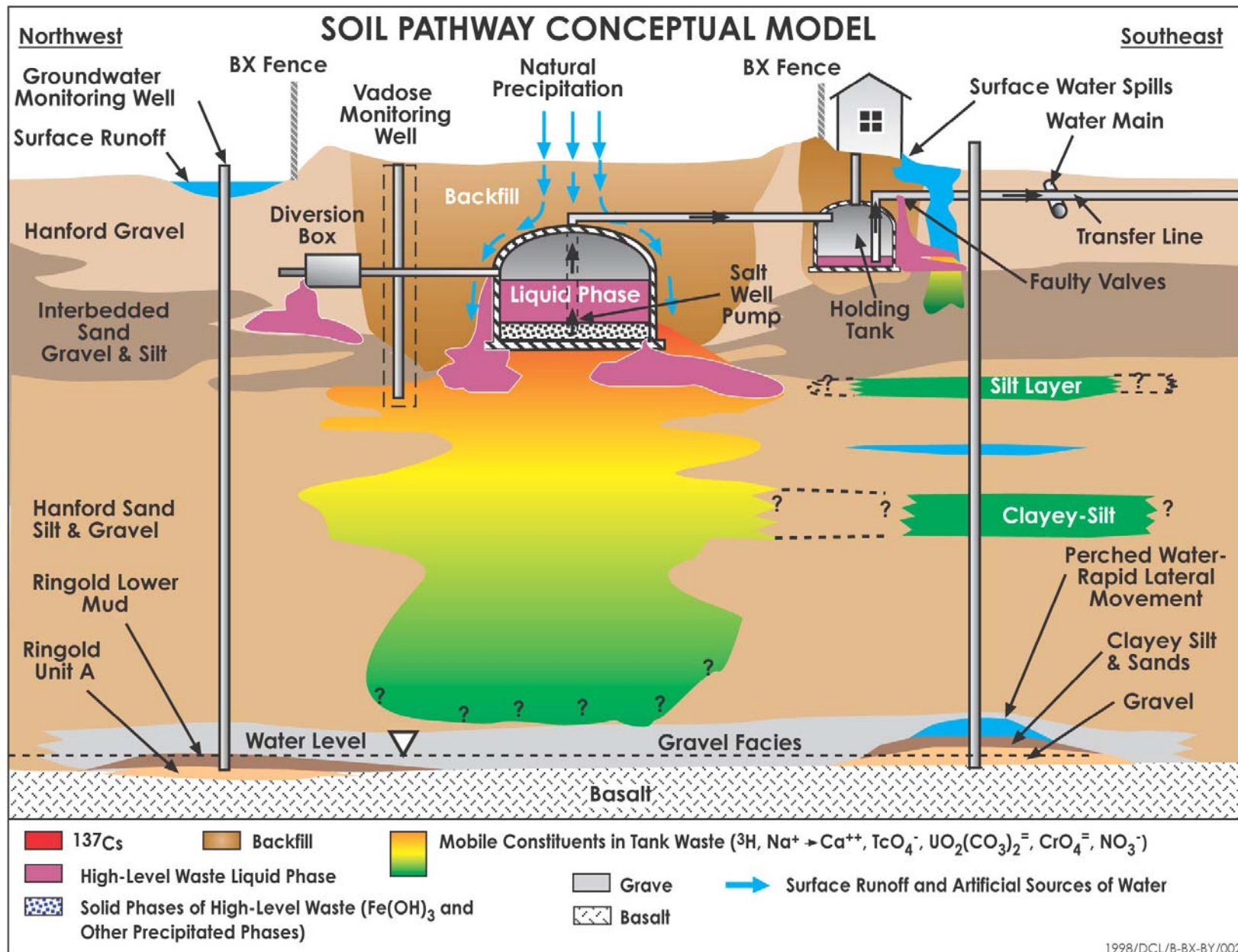
# Groundwater Investigator





















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52-81









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85>



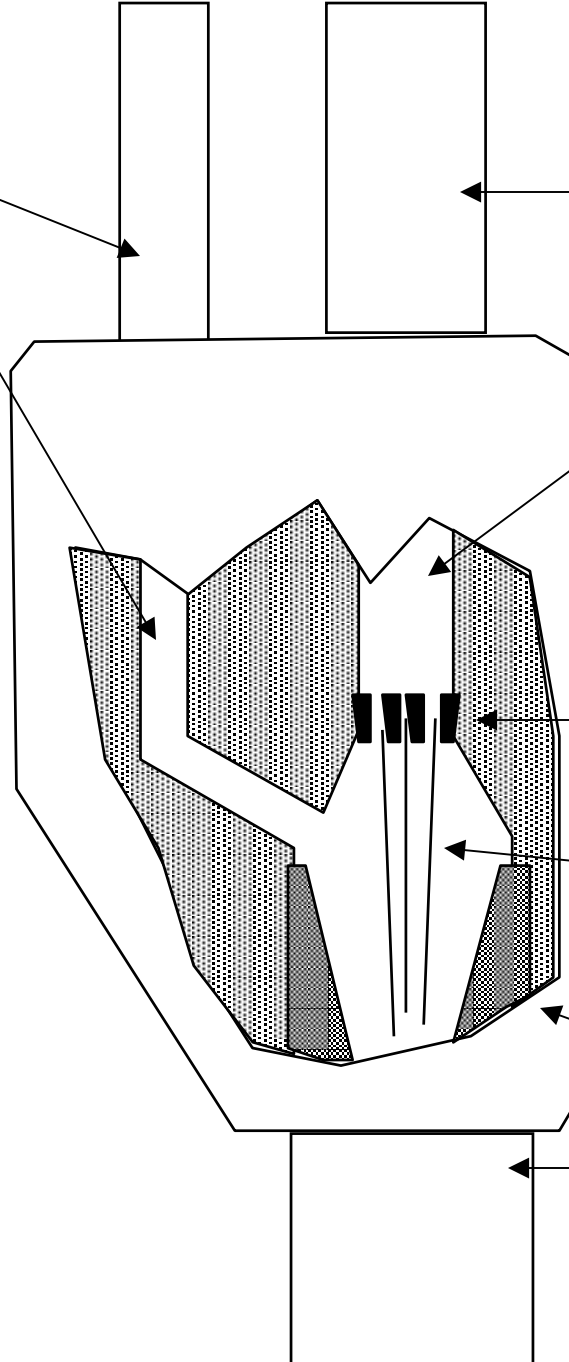


A close-up photograph of a metal rod or shaft exhibiting significant galling. The rod is positioned diagonally across the frame. To its left is a yellow tape measure with black and red markings, showing inches and feet. The tape measure has numbers like '25 FT', '3', '2', and '1' visible. The metal rod has several dark, irregular, and raised areas of material transfer, which are pointed to by two white arrows. The word 'Galling' is written in white text between the two arrows. The background is dark and out of focus.

Galling

Abrasive Feed  
Line

High Pressure  
Line



Jet Orifices

Focusing Jet Streams

Collimating Nozzle





**After Use**

**Before Use**



# Fine Garnet Sand





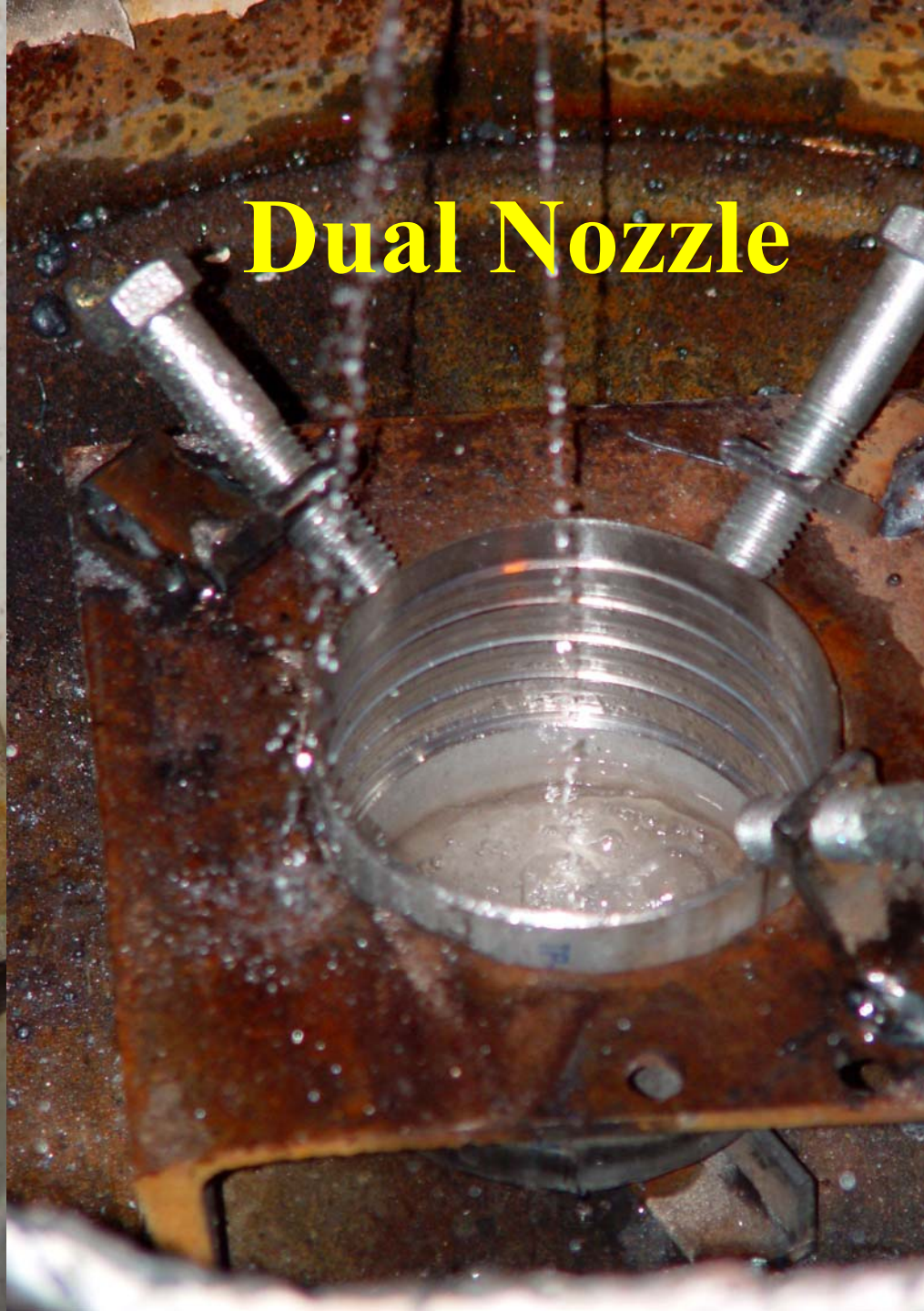


**Garnet Sand Feed System**















# Well Bottom Destruction Technique





















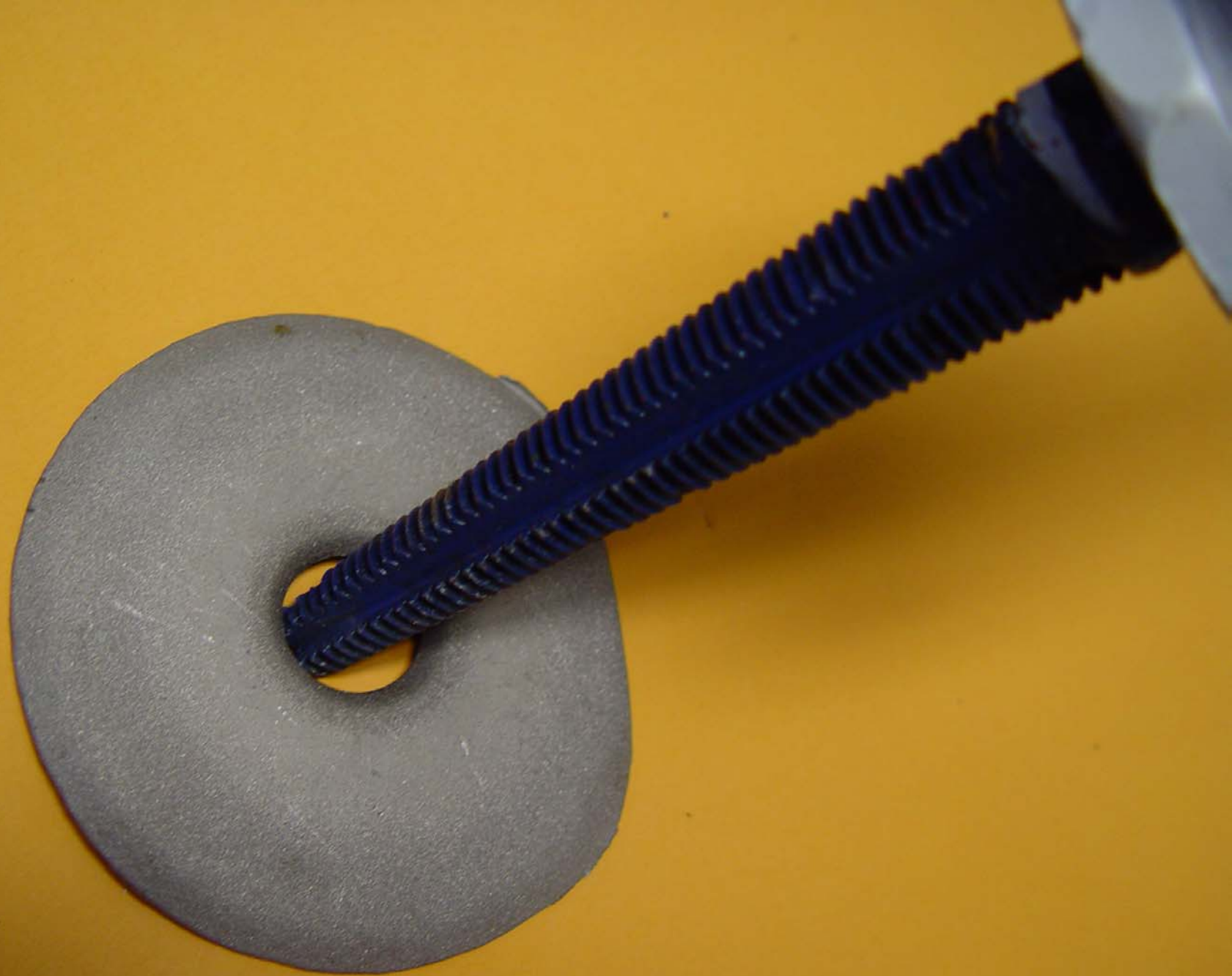




**Dual Nozzle Sprays**

















**Produced by Scott Conley and Ronald Schalla**

**Still Photography by Ronald Schalla**

**Special Effects Prepared by Scott Conley PNNL**

**Videos Courtesy of David Summers, Rock Mechanics and  
Explosives Research Center, University of Rolla, Rolla, MO.**

**Narration by Ronald Schalla PNNL**

**“James Bond Theme”**

**Performed by the London Symphony Orchestra**

**Courtesy of Capital Records, Inc., Hollywood CA**

**On Her Majesty’s Secret Service”**

**Performed by The John Barry Orchestra**

**Courtesy of Capital-EMI Music Hollywood, CA**